(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 24 December 2003 (24.12.2003)

PCT

(10) International Publication Number WO 03/107277 A2

(51) International Patent Classification⁷: G06T 17/40

(21) International Application Number: PCT/EP03/06386

(22) International Filing Date: 17 June 2003 (17.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

02013531.5

18 June 2002 (18.06.2002) EP

(71) Applicant (for all designated States except US): AU-TODESK, INC. [US/US]; 111 McInnis Parkway, San Rafael, CA 94903 (US).

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): MEISENECKER, Robert [DE/DE]; Fliegenstr. 8, 80337 München (DE).
- (74) Agent: DENDORFER, Claus; Wächtershäuser & Hartz, Weinstr. 8, 80333 München (DE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

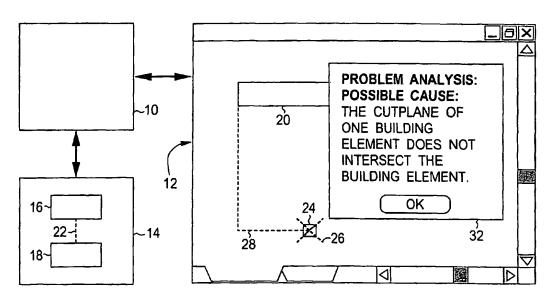
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR,

[Continued on next page]

(54) Title: PROBLEM SOLVING BY A CAD PROGRAM



(57) Abstract: In a method for solving problems that are related to geometrical properties of objects processed by a CAD program, a possible problem related to a geometrical property of at least one object is identified, and an indicator symbol is displayed in a drawing window of the CAD program. The indicator symbol is shown in graphical association with at least one entity processed by the CAD program, the entity being related to the identified possible problem. A user action related to the indicator symbol is received, and problem solving assistance is provided to the user in response to the user action. A computer program product and an apparatus comprise corresponding features. The invention provides a way for solving problems related to geometrical properties of objects processed by a CAD program that minimizes workflow disruption even in cases where the problem cannot be solved in an entirely automatic way.

VO 03/107277 A



TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(12) INTERNATIONAL A ACATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 24 December 2003 (24.12.2003)

PCT

(10) International Publication Number WO 2003/107277 A3

(51) International Patent Classification7:

G06T 17/40

(21) International Application Number:

PCT/EP2003/006386 /

(22) International Filing Date: 17 June 2003 (17.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 02013531.5

18 June 2002 (18.06.2002)

(71) Applicant (for all designated States except US): AU-TODESK, INC. [US/US]; 111 McInnis Parkway, San Rafael, CA 94903 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): MEISENECKER, Robert [DE/DE]; Fliegenstr. 8, 80337 München (DE).

(74) Agent: DENDORFER, Claus; Wächtershäuser & Hartz, Weinstr. 8, 80333 München (DE).

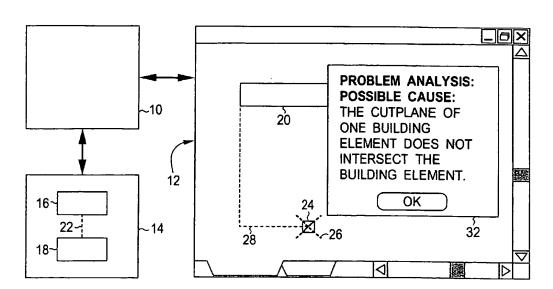
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,

[Continued on next page]

Title: PROBLEM SOLVING BY A CAD PROGRAM



(57) Abstract: In a method for solving problems that are related to geometrical properties of objects processed by a CAD program, a possible problem related to a geometrical property of at least one object is identified, and an indicator symbol is displayed in a drawing window of the CAD program. The indicator symbol is shown in graphical association with at least one entity processed by the CAD program, the entity being related to the identified possible problem. A user action related to the indicator symbol is received, and problem solving assistance is provided to the user in response to the user action. A computer program product and an apparatus comprise corresponding features. The invention provides a way for solving problems related to geometrical properties of objects processed by a CAD program that minimizes workflow disruption even in cases where the problem cannot be solved in an entirely automatic way.



KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report: 26 August 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06T17/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) $IPC \ 7 \ G06T$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KRAUSE F-L ET AL ASSOCIATION FOR COMPUTING MACHINERY: "PROCESSING OF CAD-DATA - CONVERSION, VERIFICATION AND REPAIR" PROCEEDINGS OF THE FOURTH SYMPOSIUM ON SOLID MODELING AND APPLICATIONS ATLANTA, GA, MAY, 14-16, 1997, PROCEEDINGS OF THE SYMPOSIUM ON SOLID MODELING AND APPLICATIONS, NEW YORK, ACM, US, vol. SYMP. 4, 14 May 1997 (1997-05-14), pages 248-254, XP000724309 ISBN: 0-89791-946-7 whole document/	1-10

Patent family members are listed in annex.		
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
Date of mailing of the International search report $16/06/2004$		
Authorized officer Deltorn, J-M		

INTERNATIONAL SEARCH REPORT

Internal Application No P P 03/06386

0.40	inuation) DOCUMENTS CONSIDERED TO BE RELEVANT			
Category °	Citation of document, with indication, where appropriate, of the relevant passages	To-leave the No		
	or account with minimater in the research passages	Relevant to claim No.		
Y	GB 2 354 686 A (PARAMETRIC TECH CORP) 28 March 2001 (2001-03-28) abstract claims 1,2 figure 5 page 3, line 24 - page 5, line 6 page 11, paragraph 3 - page 12, last line	1-10		
Y	US 5 371 845 A (NEWELL MARTIN E ET AL) 6 December 1994 (1994-12-06) abstract; figure 5 claims 1,4,6; figures 13A-C column 7, line 37 - line 57	1-10		
A	US 5 390 294 A (TAKEUCHI KAZUHIRO) 14 February 1995 (1995-02-14) abstract; figures 3A-B,7A-B column 1, line 59 - column 2, line 43	1-10		
A	EP 0 492 901 A (IBM) 1 July 1992 (1992-07-01) the whole document	1		
		·		
,				

INTERNATIONAL SEARCH REPORT

Int	tional Application No	
	EP 03/06386	

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
GB 2354686	Α	28-03-2001	US JP	2003156127 A1 2001014378 A	21-08-2003 19-01-2001
US 5371845	A	06-12-1994	US WO JP WO	5123087 A 9307572 A1 5507568 T 9117512 A1	16-06-1992 15-04-1993 28-10-1993 14-11-1991
US 5390294	Α	14-02-1995	JP JP	3066680 B2 6102915 A	17-07-2000 15-04-1994
EP 0492901	А	01-07-1992	JP JP CA EP US	2577510 B2 4230579 A 2057130 A1 0492901 A2 5452411 A	05-02-1997 19-08-1992 28-06-1992 01-07-1992 19-09-1995